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TITLE: ULTRASONIC MOTOR  
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ABSTRACT:

PURPOSE: To make the efficiency and torque of a wave motor higher by employing a ring member material having the product of density and sound velocity not less than  $18.71\text{kg/m}^2\text{.sec.}$  and not more than  $34.75\text{kg/m}^2\text{.sec.}$  in an ultrasonic motor using a longitudinal and torsional coupling oscillator as stator thereby matching the resonance frequencies of longitudinal and torsional oscillations to each other.

CONSTITUTION: Intermediate cylinders 16a and 16b being ring members with a support 17 between are arranged between longitudinal oscillation driving and torsional oscillation driving piezoelectric elements 10 and 11. These members

are held between a head mass 12a and rear mass 13 and firmly fastened by a nut

14. A rotor 18 is pressure-welded to the stator of said constitution by a

spring in the manner of rotating around a shaft. In this case, the ring

members are made of a material having the product of density and sound velocity

between 18.7kg/m<sup>2</sup>.sec. and 34.75kg/m<sup>2</sup>.sec.

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